corresponds to a location of the surgical instrument in the plane that is perpendicular to the first ~~z-axis~~.

141. The system as recited in claim 138, wherein said control means is a computer which receives input signals from said input means and provides output signals to said control means to move the position of the surgical instrument.

142. A system that allows a user to control a movement of a surgical instrument, wherein the surgical instrument is coupled to a display that displays an object, comprising:

a mechanism that moves the surgical instrument;

an input device that receives a command to move the surgical instrument in a desired direction relative to the object displayed by the display device; and,

a computer that receives said command to move the surgical instrument in the desired direction, computes a movement of said mechanism based on said command so that the surgical instrument moves in the desired direction, and provides output signals to said mechanism to move said mechanism said computed movement to move the surgical instrument in the desired direction commanded by the user.

143. The system of claim 142, wherein the instrument has an elongate shaft, a wrist, and an end effector, the shaft having ~~a proximal~~ end adjacent the mechanism, the wrist pivotably coupling a distal end of the shaft to the end effector, wherein the mechism moves the end effector relative to the object by pivoting the instrument about a pivot point disposed along the shaft and by articulating the wrist.--

REMARKS

Claims 138-143 have been added. Claims 138-141 correspond exactly to claims 8, 13, 14, and 19 of U.S. Patent 5,815,640 (the '640 patent), which issued to Wang et al. on September 29, 1998. Claim 142 substantially corresponds to claim 8 of the '640 patent, while claim 143 adds additional elements further supporting patentability of the present application.

Applicant respectfully requests that an interference be declared under 37 C.F.R. §1.607 between the present application and the '640 patent.

The present application, U.S. patent application serial No. 08/709,930, filed on September 9, 1996, is a continuation of U.S. patent application Serial No. 07/823,932, filed on January 21, 1992. The '640 patent issued from Application No. 08/903,914, which was filed on July 31, 1997; which was a continuation of Application No. 08/613,866, filed on March 11, 1996 (which issued as U.S. Patent No. 5,907,664); which is a continuation of Application No. 08/072,982, filed June 3, 1993 (which issued as Patent No. 5,524,180); which was a continuation-in-part of Application No. 08/005,604, filed on January 19, 1993 (now abandoned); which was a continuation-in-part of Application No. 07/927,801 filed Aug 10, 1992 (now abandoned) [1]. Therefore, applicant believes that applicant would be senior party in any interference proceedings.

Under M.P.E.P. §2307 and 37 C.F.R. §1.607, applicant requests this interference be declared between the present application and the unexpired '640 patent, and has satisfied each requirement of 37 C.F.R. §1.607 as follows:

(1) The unexpired patent is U.S. patent No. 5,815,640, which issued to Wang et al. on September 29, 1998.

(2) The Proposed Count is as follows:

Count 1

(i) A system that allows a user to control a movement of a surgical instrument, wherein the surgical instrument is coupled to a display device that displays an object, comprising:

a mechanism that moves the surgical instrument, said mechanism having an original position;

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[1] Applicant does not admit that application Serial No. 927,801, nor any of the underlying applications, supports either the Proposed Count or the claims of the '640 patent.

an input device that receives a command to move the surgical instrument in a desired direction relative to the object displayed by the display device; and,

a controller that receives said command to move the surgical instrument in the desired direction, computes a movement of said mechanism based on said command and the original position of said mechanism so that the surgical instrument moves in the desired direction, and provides output signals to said mechanism to move said mechanism said computed movement to move the surgical instrument in the desired direction commanded by the user,

OR

(ii) A system that allows a user to control a movement of a surgical instrument, wherein the surgical instrument is coupled to a display that displays an object, comprising:

a mechanism that moves the surgical instrument;

an input device that receives a command to move the surgical instrument in a desired direction relative to the object displayed by the display device; and,

a computer that receives said command to move the surgical instrument in the desired direction, computes a movement of said mechanism based on said command so that the surgical instrument moves in the desired direction, and provides output signals to said mechanism to move said mechanism said computed movement to move the surgical instrument in the desired direction commanded by the user.

Proposed Count 1 is a phantom count and has for its first part (i) claim 8 (the broadest claim) of the '640 patent; and for its second

part (ii) claim 142 of the present application, a claim substantially corresponding to claim 8 of the '640 patent. As is required under 37 C.F.R. §1.606, the Proposed Count is not narrower in scope than any patent claim or pending application claim designated to correspond to the count.

(3) It is respectfully submitted that all claims (1-22) of the '640 patent correspond to the Proposed Count. Claim 8 of the '640 patent corresponds exactly to Part (i) of the Proposed Count. Claims 1-7 and 9-22 of the '640 patent correspond substantially to the Proposed Count, since each would have been obvious in view of the Proposed Count.

(4) It is respectfully submitted that claims 138-143 of the present application correspond to the Proposed Count.

(5) Support for claims 138-143 is found throughout the specification as originally filed in parent application 07/823,932. Once again, the present application (08/709,930, filed on September 9, 1996) is a continuation of the parent application, which was filed on January 21, 1992. Specifically, examples of support in the parent application are found as tabulated below.

Claim 138 (Claim 8 of '640 Patent)	Support in Parent Application 07/823,932
A system that allows a user to control a movement of a surgical instrument, wherein the surgical instrument is coupled to a display device that displays an object, comprising:	Page 9, lines 20-25 and page 13, lines 1-3 and 21-25 explain that Figs. 7 through 9 illustrate teleoperator systems adapted for performing surgical procedures by robotically moving surgical instruments inserted into patients. The instrument is coupled to a display 54 as shown in Fig. 1, and the display shows an object 26.

Claim 138 (Claim 8 of '640 Patent)	Support in Parent Application 07/823,932
a mechanism that moves the surgical instrument, said mechanism having an original position;	Manipulator mechanisms 34, 100, and 142 move the instruments as shown in Figs. 1, 7, and 9. The manipulators inherently have original positions.
an input device that receives a command to move the surgical instrument in a desired direction relative to the object displayed by the display device; and,	Input control arms 76, 150 receive commands to move the instrument in a desired direction relative to the display shown on display 54, as shown in Figs. 1 and 7, and as described on page 12, lines 1-4.
a controller that receives said command to move the surgical instrument in the desired direction, computes a movement of said mechanism based on said command and the original position of said mechanism so that the surgical instrument moves in the desired direction, and provides output signals to said mechanism to move said mechanism said computed movement to move the surgical instrument in the desired direction commanded by the user.	Computer 42 receives the commands to move the instruments in the desired direction and computes movement of manipulator arms from the commands, as explained on page 9, lines 20-28. Robotic systems inherently base computed movements on the initial position of their arms. Computer 42 provides output commands (via manipulator interface 44) to manipulator 34 as illustrated in Fig. 1, causing the manipulator to move the surgical instrument in the direction commanded by the user.

Claim 139 (Claim 13 of '640 Patent)	Support in Parent Application 07/823,932
The system as recited in claim 138, wherein said mechanism includes a first linkage arm coupled to the surgical instrument and a first actuator which can rotate said first linkage arm and the surgical instrument in a plane perpendicular to a first z axis, said first actuator being coupled to a liner actuator which can translate said first actuator along an axis parallel with the first z axis.	As illustrated in Fig 11, a forearm pivotal control linkage 188 moves the surgical instrument with a pivotal motion about point 176 by pivotal rotation in the direction of arrows 152M and 154M. To maintain the center of rotation of forearm 174 fixed in space at point 176, linkage 188 effects linear lateral movement in planes perpendicular to the associated axes of rotations as described on page 18, lines 21-26. The orientation of coordinate systems related to these perpendicular articulations appears to be arbitrary. Page 21, lines 29-35 discloses the use of linear motors for actuating the manipulators.

Claim 140 (Claim 14 of '640 Patent)	Support in Parent Application 07/823,932
The system as recited in claim 139, wherein said mechanism includes a first actuator sensor that is coupled to said linear actuator and provides a first feedback signal which corresponds to a location of said first actuator on the first z axis, and a second actuator sensor that is coupled to said first actuator for proving a second feedback signal which corresponds to a location of the surgical instrument in the plane that is perpendicular to the first z axis.	The use of actuator sensors (including resistive/conductive, semiconductor, piezoelectric, capacitative, photoelectric, and optical or electromagnetic position encoders) for feedback are described on page 21, lines 26-35. Actuation feedback signals for the perpendicularly oriented articulations will inherently correspond to locations along perpendicular axes.

Claim 141 (Claim 19 of '640 Patent)	Support in Parent Application 07/823,932
The system as recited in claim 138, wherein said control means is a computer which receives input signals from said input means and provides output signals to said control means to move the position of the surgical instrument.	As shown in Fig. 1, computer 42 receives input signals from the input device (via controller interface 80) and provides output signals to the manipulator (via manipulator interface 44) to move the position of the end effector.

Claim 142	Support in Parent Application 07/823,932
A system that allows a user to control a movement of a surgical instrument, wherein the surgical instrument is coupled to a display that displays an object, comprising:	Page 9, lines 20-25 and page 13, lines 1-3 and 21-25 explain that Figs. 7 through 9 illustrate teleoperator systems adapted for performing surgical procedures by robotically moving surgical instruments inserted into patients. The instrument is coupled to a display 54 as shown in Fig. 1, and the display shows an object 26.
a mechanism that moves the surgical instrument;	Manipulator mechanisms 34, 100, and 142 move the instruments as shown in Figs. 1, 7, and 9.
an input device that receives a command to move the surgical instrument in a desired direction relative to the object displayed by the display device; and,	Input control arms 76, 150 receive commands to move the instrument in a desired direction relative to the display shown on display 54, as shown in Figs. 1 and 7, and as described on page 12, lines 1-4.

Claim 142	Support in Parent Application 07/823,932
a computer that receives said command to move the surgical instrument in the desired direction, computes a movement of said mechanism based on said command so that the surgical instrument moves in the desired direction, and provides output signals to said mechanism to move said mechanism said computed movement to move the surgical instrument in the desired direction commanded by the user.	Computer 42 receives the commands to move the instruments in the desired direction and computes movement of manipulator arms from the commands, as explained on page 9, lines 20-28. Computer 42 provides output commands (via manipulator interface 44) to manipulator 34 as illustrated in Fig. 1, causing the manipulator to move the surgical instrument in the direction commanded by the user.

Claim 143	Support in Parent Application 07/823,932
The system of claim 142, wherein the instrument has an elongate shaft, a wrist, and an end effector, the shaft having a proximal end adjacent the mechanism, the wrist pivotably coupling a distal end of the shaft to the end effector, wherein the mechism moves the end effector relative to the object by pivoting the instrurment about a pivot point disposed along the shaft and by articulating the wrist	As illustrated in Fig. 9 and described on page 18, lines 15-30, the surgical instrument includes an elongate forearm 174 coupled to end effector 170 by wrist 172. Pivoting of the shaft about an incision is described on page 18, lines 3-8.

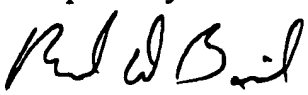
(6) The requirements of 35 U.S.C. §135(b) are met because the '640 patent was issued on September 29, 1998, which is less than one year before the

filing date of this Supplementary Preliminary Amendment (July 14, 1999) which adds claims 138-143 to the above-referenced application.

CONCLUSION

In view of the above, applicant believes that no new matter has been introduced. Applicant respectfully requests that the Examiner declare an interference with the '640 patent, and furthermore, requests that the examination of the present application be conducted with special dispatch, per 37 C.F.R. §1.607(b).

Respectfully submitted,



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